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THE WEST INDIAN BLENNIID FISHES OF THE GENUS *HYPLEUROCHILUS*, WITH THE DESCRIPTION OF A NEW SPECIES

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The Atlantic blenniid fish genus *Hypleurochilus* Gill is characterized by having the gill membranes broadly joined to the isthmus (the gill opening ends at level of lower base of the pectoral), a prominent incurved canine tooth on the side of each jaw posterior to the row of incisiform teeth, typically 14 pectoral rays, and supraorbital cirri. It has been previously known from the western North Atlantic by the type-species, *Blennius multifilis* Girard (which is generally regarded as a junior synonym of *B. geminatus* Wood) and *H. bermudensis* Beebe and Tee-Van.

Recent collections in the Gulf and Caribbean region have revealed two additional species allied to *bermudensis*, sharing with it the deeply indented dorsal fin (last dorsal spine usually less than half the length of the first dorsal ray) and the count of I,4 pelvic rays.[1] One of these fishes is *H. aequipinnis* (Günther) heretofore known only from a single specimen collected in West Africa in 1851. The other represents an undescribed species. Both occur in the West Indies and are treated in the present paper as a prerequisite to a book on the fishes of this region which is in preparation by the writer.

Hypleurochilus geminatus is characterized by a slightly indented dorsal fin (last dorsal spine more than two-thirds length of first dorsal ray) and in usually having I, 3 instead of I,4 pelvic rays. More than one species of blenny is currently

[1] The pelvic spine is small and difficult to see without dissection; the third and fourth rays are slender and easily overlooked.

classified under the name *geminatus*, and a review of this complex is needed. Species of the *geminatus* group in the western Atlantic appear to be confined to continental waters.

As indicated by Norman (1943), *Blennius fissicornis* Cuvier and Valenciennes from Rio de Janeiro appears to be a valid species of *Hypleurochilus*. It is characterized by I,3 pelvic rays, 14 or 15 dorsal soft rays, 16 or 17 soft anal rays, the last dorsal spine about half the length of the first dorsal ray, and a dark spot anteriorly on the dorsal fin. The elongate supraorbital cirrus of mature males is unusually long, its length contained about 1.6 times in the head length. Specimens from Rio de Janeiro and Montevideo were sent on loan from the British Museum (Natural History). A related species from West Africa, *Hypleurochilus bananensis* (Poll), is discussed briefly in the account of *H. aequipinnis*.

Longley and Hildebrand (1941) have pointed out three morphological differences between the sexes of *H. bermudensis*. The supraocular cirri are dissimilar in the male; one is thick and elongate, exceeding the eye diameter in length. The canine teeth are larger in the male. There are marked differences in the external genitalia (figured on Plate 31 in Longley and Hildebrand). The two anal spines of the male are conspicuously tipped with rugose, fleshy knobs; in the female there is a triangular fleshy region in which the first anal spine is so deeply buried that only its tip shows as a small papilla. These sexual differences are also apparent on at least some of the related species.

The number of incisiform teeth, lateral-line pores and supraorbital cirri of species of *Hypleurochilus* seem to increase with age. These characters have systematic value only when the lengths of specimens are given with the counts. All length measurements in this paper are standard length.

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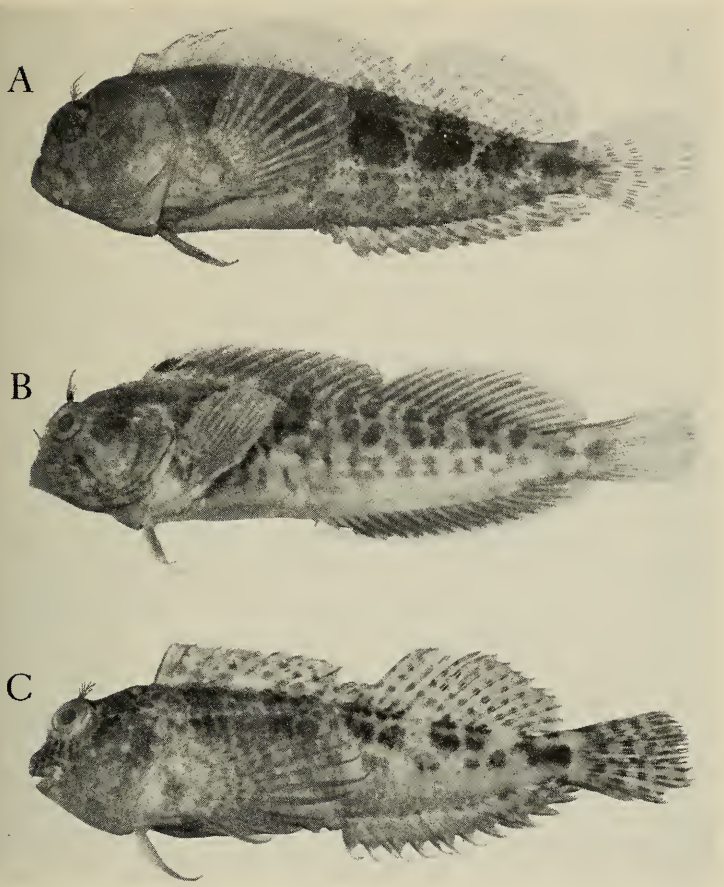

FIG. 1. A.—*Hypleurochilus bermudensis* Beebe and Tee-Van, male, 47.8 mm standard length, Tortugas, Florida (USNM 116805). B.—*Hypleurochilus aequipinnis* (Günther), male, 40.4 mm standard length, Florida Keys (UMML 3131). C.—Holotype of *Hypleurochilus springeri*, female, 48.2 mm standard length, Puerto Rico (USNM 257884–F1).

Florida State Museum, University of Florida (UF); Werner Ladiges of the Zoologisches Staatsinstitut und Zoologisches Museum (ZSZM); Francisco Mago-Leccia of the Museo de Biología, Universidad Central de Venezuela (MBUCV); M. Poll of the Musée Royal de l'Afrique Centrale (Belgium); C. Richard Robins of the Institute of Marine Science, University

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Hypleurochilus bermudensis
Fig. 1A

Hypleurochilus bermudensis Beebe and Tee-Van, 1933, Zoologica, vol. 13, no. 7, p. 155, Fig. 38 (type-locality, Marshall Island, Bermuda).

Material examined: BERMUDA: USNM 21979 (80.0 mm), no further collecting data; CNHM 48817 (26.0 mm), Flatts Inlet, L. L. Mowbray, 26 November 1927; CNHM 48709 (65.1 mm), Harrington Sound, L. L. Mowbray, 20 June 1934; CNHM 49041 (2: 32.0 and 34.6 mm), White Flatts, L. L. Mowbray, 8 December 1938; UNITED STATES, Florida: USNM 116805 (9: 35.0–47.3 mm), Tortugas, W. H. Longley, no collecting date; UMML 2561 (23.4 mm), 200 ft E Alligator Reef Light, Florida Keys, in 8 to 10 ft, W. A. Starck, II, 14 June 1956; UF 5699 (22.2 mm), jetties at Panama City, Gulfarium staff, October 1956; UMML 4050 (27.6 mm), ¾ mi. E Lower Matecumbe Key, Florida Keys, ballast stones in 8–15 ft, C. R. Robins, V. Walters, W. R. Courtenay, and W. A. Starck, II, 3 May 1958; UMML 4658 (32.9 mm), ½ mi. SW Alligator Reef Light, Florida Keys in 20 ft, W. A. Starck, II, 24 August 1958; UMML 5520 (28.4 mm), Alligator Reef Light, Florida Keys, 20 ft, W. A. Starck, II, 13 June 1959; UMML 5486 (37.9 mm), Indian Key, 1 mi. off lower Matecumbe Key, Florida Keys, oolite formation, W. R. Courtenay, W. A. Starck, II, and T. W. McKenney, 19 September 1959; UF 10877 (30.3 mm). Looe Key, 4½ mi. SSW U. S. Highway 1 from Little Torch Key, Florida Keys, C. R. Gilbert and R. Parks, 1–2 November 1963; BAHAMAS: ANSP 93079 (36.0 mm), off Water Cays, Cay Sal Bank, Capt. H. P. Brown, 22 May 1960.

Diagnosis: Pelvic rays I,4; dorsal soft rays 13 (rarely 12); anal soft rays 15 (rarely 14); vertebrae 31 (rarely 30); dorsal fin deeply indented at end of spinous portion; length of pectoral fin contained 3.5 to 4 times in standard length; supraorbital cirri 2 to 7 (usually 4 or 5) in size range of 22 to 80 mm standard length; a series of 6 large roundish to quadrangular saddle-like blotches on upper half of body (sometimes extending narrowly below mid-line); blotches tend to broaden ventrally toward mid-line and may be confluent there; intervening pale areas and ventral half of body with numerous small dark spots; fins with small dark spots (mostly along the rays), those in caudal forming about 4

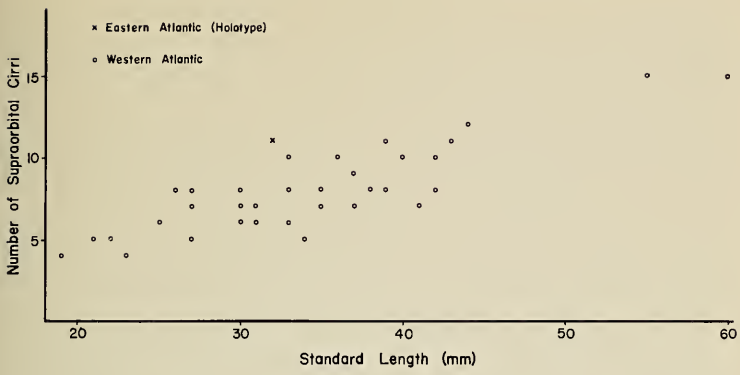

Fig. 2. Relationship of the number of supraorbital cirri of specimens of *Hypleurochilus aequipinnis* to the standard length.

irregular vertical bars; a dark spot centered on caudal base; no dark spot anteriorly on dorsal fin.

Remarks: *H. bermudensis* was described from a single 40-mm Bermuda specimen. Mead (1958) reported that the type is located at the Museum of Comparative Zoology at Harvard University (MCZ 33070). Longley and Hildebrand (1941) recorded the species from Tortugas, Florida. Recent collections here reported for the first time include specimens from Cay Sal Bank in the Bahamas, the Florida Keys, and Panama City, West Florida. Judging from the few specimens in large collections, the species is not common.

Hypleurochilus aequipinnis
Fig. 1B

Blennius aequipinnis Günther, 1861, Cat. Fishes British Mus., vol. 3, p. 225 (type-locality, West Africa).

Material examined: JAMAICA: USNM 131303 (3: 21.0–29.2 mm), "Albatross," 1–11 March 1884; LACM 6485 (25.4 mm), same data as preceding; S CUBA: ZSZM uncatalogued (32.5 mm), Capt. Kreck, 1892; VIRGIN ISLANDS: USNM 78159 (6: 22.7–36.0 mm), C. R. Shoemaker, 10 July 1915; PUERTO RICO: USNM 120341 (43.0 mm), Mayagnez, C. J. D. Behrens, 5 July 1942; UPR 2303 (2: 27.2 and 34.0 mm), TMT dock, Isla Grande, San Juan, mud bottom at edge of concrete ramp in 2–10 ft, J. E. Randall and A. B. Cochran, 10 August 1964; UPR 2372 (3: 22.0–41.6 mm), Magueyes Island, La Parguera, west side at dock, metal debris on silt bottom near *Thalassia* in 8 ft, J. E. and R. D. Randall, 7 November 1964; MNHN 1965–292 (3: 24.9–40.2 mm), Montalva Bay, mangrove islet at east side of bay, mangrove roots in 2–4 ft, D. S. Erdman, 24 February 1965; DOMINICAN REPUBLIC: USNM 88988 (39.8 mm), Samana Bay, G. S. Miller, 22 February 1928;

CURAÇAO: SU 23256 (3: 22.9–26.0 mm), Spanish Water, Dr. van der Horst, 25 May 1920; VENEZUELA: MHNLS 874 (40.8 mm), Gulf of Cariaco, F. Yepez, 28 December 1945; MBUCV V–1936 (24.5 mm), Dos Mosquises, Archipiélago Los Roques, T. Cobo and F. Weibezahn, 5 August 1963; MHNLS 877 (3: 33.0–47.3 mm), Isla Cubagua, near Isla de Margarita, edge of patch reef of *Acropora palmata* at east end of island in 3 ft, J. E. Randall and B. Endicott, 23 January 1965; MBUCV V–2710 (3: 39.5–48.6 mm), Adaro Bay, Paraguaná, NW corner of bay, rock and sand shore in 4 ft, J. E. Randall, 29 January 1965; MEXICO: Yucatan: USNM 192341 (2: 26.7 and 31.4 mm), Daiber, 20 April 1960; USNM 192400 (2: 30.2 and 35.1 mm), Bredin Expedition, 13 April 1960; USNM 192242 (2: 41.5 and 42.0 mm), Allen Point, Ascension Bay, Bredin Expedition, 12 April 1960; UNITED STATES: Florida: UMML 2626 (29.1 mm), Bear Cut, Virginia Key, Miami, D. P. de Sylva, September 1955; UMML 3131 (11: 19.1–40.4 mm), Barnes Sound, 1.5 mi. N Jewfish Creek Bridge by U. S. Highway 1, Florida Keys, C. R. Robins, W. Courtenay, R. Cissel, and W. Yang, 25 June 1957; UMML 4072 (11: 26.8–59.9 mm), pier of Marine Laboratory, University of Miami, Virginia Key, W. R. Courtenay and A. J. Provenzano, 4 March 1958; UMML 4625, same locality as UMML 4072, Diva Correa, 14 January 1959; ANSP 93078 (36.9 mm), northern end of Key Largo, Florida Keys (25° 18′ 35″N, 80° 16′ 30″W), bottom largely coral mud and heavy grass, D. M. and A. N. Barringer and L. and C. Dam, 3 April 1958; FSU 12242 (32.4 mm), Jupiter Inlet, Palm Beach County, Susan Kindt, September–November 1958; FSU 12082 (31.5 mm), same locality as FSU 12242, Flora Hodgsen, 17 February 1959; Florida: Fort Pierce, USNM 103115 (32.7 mm), Christianson and Behrens, 13 January 1937.

Diagnosis: Pelvic rays I,4; dorsal soft rays 13 or 14; anal soft rays 15 or 16 (rarely 14); vertebrae 32 (rarely 31 or 33); dorsal fin deeply indented; pectoral fin contained 3.6 to 4.3 times in standard length; supraorbital cirri 4 to 15 in size range of 20 to 60 mm standard length (Fig. 2); upper half of body with a series of 6 groups of dark spots, each group consisting of 4 spots or aggregates of spots arranged approximately in a square; first group of spots centered at base of third and fourth dorsal spines, third group beneath notch of dorsal fin, fourth centered beneath base of fourth dorsal soft ray, and the last on caudal peduncle (sometimes appearing as two groups, the first at rear base of dorsal fin); in addition, there is a group of dark spots on nape, another on pectoral base, a single spot or pair of spots at mid-base of caudal fin, and a row down the mid-side of body, most of which are not in line with the spots above; often an irregular dark bar or vertical row of spots between major groups of spots; a blackish spot anteriorly on dorsal fin; median fins dusky, the spinous portion of the dorsal with scattered small brown spots, the tips of the anal rays pale; a row of dark spots may be present along anal base.

Remarks: No differences were noted between western Atlantic specimens of this species and Günther's brief description of *Blennius aequipin-*

nis from West Africa. Victor G. Springer supplied a 35-mm kodachrome transparency of the holotype of *aequipinnis* (BMNH 1851.8.26.10) and the following data: female, 31.8 mm standard length, dorsal rays XII,13; anal rays II,16; pectoral rays 14/14; pelvic rays I,4/I,4, segmented caudal rays 13 (upper and lower two unbranched), vertebrae 32, prenasal pores 3/3; predorsal pores about 15; preopercular and some circumorbital pores paired; nasal cirri (left) 4; supraorbital cirri (free tips, left) 11; dental formula $\frac{1\text{–}24\text{–}1}{1\text{–}25\text{–}1}$. As indicated previously, the number of incisiform teeth seems to increase, in general, with size. Tooth counts were made of four specimens of western Atlantic *aequipinnis* as follows: 27 mm: 24 upper and 23 lower; 33 mm: 27 upper and lower; 37 mm: 26 upper and lower; 48 mm: 29 upper and 31 lower.

The color pattern of the body of the holotype shows very faintly on the kodachrome. A dark spot at the front of the dorsal fin could not be positively detected on the kodachrome, so A. C. Wheeler of the British Museum (Natural History) was asked to examine the type for this color marking. He reported a spot anteriorly on the fin.

Another species of *Hypleurochilus* described from West Africa, *H. bananensis* (Poll), also has I,4 pelvic rays, a deeply indented dorsal fin, and a black spot anteriorly on the dorsal fin. It differs from *aequipinnis* notably in having a low fleshy crest mid-dorsally on the postorbital part of the head, 15 dorsal soft rays, and 17 anal soft rays.

Apparently the males of *aequipinnis* are colored differently from the females. A 47-mm male collected by the writer at Isla Cubagua in the southern Caribbean was greenish gray with small orange spots in groups dorsally on the body. A female of the same size taken at the same station had dark brown spots in aggregates which were overlaid with orange dots. Both fish had orange dots on head. In preservative the groups of the spots on the body are faint on the male but conspicuous on the female.

One 26-mm specimen from Curaçao is a male with well-developed external genitalia. Another of 33 mm from Florida is just developing the fleshy knobs distally on the anal spines.

Species of *Hypleurochilus* seem to be benthic on hard substratum in shallow water. *H. aequipinnis* is consistent with this generality in its habitat. It has been collected on pilings, mangrove roots, and rock outcroppings near shore. Although it has been found in relatively clear water near a clean sand bottom, it seems to be more inclined than *bermudensis* or *springeri* to live in turbid water in association with a mud or silty sand bottom.

Erdman (1961) recorded *aequipinnis* from Puerto Rico under the name *H. bermudensis*. He used the common name "oyster blenny," in reference to the occurrence of this species on oyster-covered mangrove roots.

The stomach and intestinal contents of two specimens from Venezuela were examined. The fish had eaten cheliferan crustaceans, amphipods, unidentified crustaceans, hydroids (*Halecium*?), bryozoans (*Crisia*?), a small pelecypod, and unidentified soft animal material.

TABLE 1. Fin-ray and vertebral counts of West Indian species of *Hypleurochilus*

Species and Locality	Dorsal Spines			Dorsal Rays			Anal Rays			Pectoral Rays			Vertebrae			
	XI	XII	XIII	12	13	14	14	15	16	13	14	15	30	31	32	33
bermudensis																
Bermuda		5			5			5		1	9			3		
Bahamas		1			1			1			2			1		
Florida	1	17		3	15		2	16		1	35		1	12		
aequipinnis																
West Africa[1]		1			1				1		1				1	
West Indies	1	20			15	6		18	3	1	41			1	11	
Florida		26			10	16	2	7	17	4	46	2		1	13	2
Yucatan		6			3	3		3	3	3	9				3	
Venezuela		8			3	5		3	5		15	1				
springeri																
West Indies	1	24	3	6	22		10	17	1	2	53	1			7	
Florida		2		1	1		1	1			4					
Los Roques (Ven.)		3			3		1	2		1	5					

[1] Counts from holotype by Victor G. Springer.

The only difference that was detected between the holotype (apparently the only specimen known from West Africa) and the American material was a slightly higher count of the supraorbital and nasal cirri of the type for its size. As may be seen in Figure 2, the point representing the 11 supraorbital cirri of the type lies above the average for western Atlantic specimens. The 31.8-mm holotype of *aequipinnis* has 4 cirri at the posterior edge of the anterior nostril. Only western Atlantic specimens in excess of 40 mm have 4 nasal cirri at the posterior edge of the anterior nostril (of 10 specimens 40 mm or longer, six have 4 nasal cirri, three have 3 and one has 2).

It is possible that more differences can be shown by direct comparison of West African and American fishes, but for the present, the identification of the latter as *aequipinnis* seems in order. This does not represent the only example of a blennioid fish that is common to both sides of the tropical Atlantic. *Blennius cristatus* Linnaeus, *Ophioblennius atlanticus* (Cuvier and Valenciennes) and *Labrisomus nuchipinnis* (Quoy and Gaimard) have the same distribution.

Hypleurochilus springeri, new species
Fig. 1C

Holotype: USNM 257884-Fl, female, 48.2 mm standard length, Cabo Rojo, Puerto Rico, SW of lighthouse, rocky shore with sand and seagrass in 0 to 5 ft, Pro-Noxfish, J. E. Randall, 16 August 1964.

Paratypes: PUERTO RICO: UMML 1758 (33.8 mm), Bahía de Yegua, coral reef and some sand in 1–10 ft, J. E. Randall, D. S. Erdman, R. E. Maytag, 12 November 1957; UPR 2370 (20.5 mm), Punta Arenas, Mayaguez, coral reef with little sand, 1–5 ft, J. E. Randall, 3 November 1964; U.S. VIRGIN ISLANDS: LACM 7507 (29 mm), Beehive Point, Lameshur Bay, St. John, about 90% rock and coral and 10% sand in 0–18 ft, J. E. and H. A. Randall and R. E. Schroeder, 14 June 1961; BRITISH VIRGIN ISLANDS: ANSP 93077 (2: 24.5 and 27.0 mm), White Bay, Guana Island, 20–100 ft from sand beach with some boulders, 4–8 ft, D. M. and A. N. Barringer, 12–16 July 1959; NETHERLANDS ANTILLES: St. Martin: UMML 6910 (42.3 mm), Little Bay, sand with occasional algal-covered rocks at shore, J. E. Randall and C. P. Idyll, 7 July 1959; ANTIGUA: UF 11408 (2: 12.6 and 17.4 mm), Windward Bay, 5–10 ft, C. R. Gilbert and B. M. Endicott, 26 April 1964; UF 11354 (26.9 mm), south side near point east of Carlisle Bay, 30 ft, C. R. Gilbert and B. M. Endicott, 26 April 1964; DOMINICA: USNM 198262 (16.5 mm), west coast north of Mero, rocks and mud, V. G. Springer, *et al.*, 1 November 1964 (courtesy of Bredin–Archbold–Smithsonian Biological Survey of Dominica); VENEZUELA: Archipiélago Los Roques, Dos Mosquises: MBUCV V–962 (2: 27.6 and 33.2 mm), T. Cobo and F. Weibezahn, 5 August 1963; MBUCV V–1476 (22.9 mm), T. Cobo, O. Infante, and F. Weibezahn, 25 August 1963; JAMAICA: UMML 14953 (17.8 mm), west end of Maiden Cay, shore, J.

and H. Randall, J. Chess, T. Gordon, and D. Steven, 16 December 1959; GRAND CAYMAN: UF 12275 (2: 17.2 and 17.6 mm), north end of West Bay Beach, 3–8 ft, C. R. Gilbert and J. C. Tyler, 20 October 1964; UF 12276 (2: 11.5 and 19.0 mm), south side of Georgetown, 1–7 ft, C. R. Gilbert and J. C. Tyler, 23 October 1964; UF 12277 (10.8 mm), north side of Georgetown, coral heads and "ironshore" formation, 75 yards in front of Soto's Marina, 5–12 ft, C. R. Gilbert and J. C. Tyler, 24 October 1964; BAHAMAS: Grand Bahama Island: ANSP 92742 (17.0 mm), Wood Cay, R. E. Schroeder and S. Gross, 28 June 1959; Hog Island: ANSP 81688 (39.5 mm), Paradise Beach, sand and rock bottom in 5–6 ft, rotenone, C. G. Chaplin, 1 March 1953; Exumas: UMML 15978 (3: 16.3–41.1 mm), Stocking Island, east shore, sand and rock in 2–8 ft, W. A. Starck, II and T. J. Starck, 13 July 1959; ANSP 102130 (3: 16.3–28.5 mm), same data as preceding; Cat Island: UMML 5940 (2: 26.0 and 33.0 mm), 1.4 mi. N New Bight in 8 ft, W. A. Starck, II, 17 July 1959; UNITED STATES: Florida: UF 10884 (2: 24.2 and 30.4 mm), Looe Key, Florida Keys, 4.5 mi. SSW U. S. Highway 1, C. R. Gilbert and R. Parles, 1–2 November 1963; PUERTO RICO: UPR 1481 (26.6 mm), same collecting data as holotype.

Diagnosis: Pelvic rays I,4; dorsal soft rays 12 or 13 (usually 13); anal soft rays 14 to 16 (usually 15, rarely 16); vertebrae 32; dorsal fin deeply indented; length of pectoral fin 3.1 to 3.7 in standard length; supraorbital cirri 2 to 11 in size range 20 to 48 mm standard length; color of adults similar to *aequipinnis*, but with 5 groups of dark spots along the back instead of 6 (first 3 in the same position on both species), no blackish spot anteriorly on dorsal fin (on some specimens there is a faint smudge) and no dark spot at mid-base of caudal fin. Instead of groups of spots, the last 3 markings of juveniles consist of solid blackish bars which extend below the mid-line (the first 2 markings anteriorly on the body are faint).

Description: Depth of body 3.5 to 4.3 in standard length, the greatest depth occurring at approximately the pectoral base; width of body 5.5 to 6.5 in standard length; least depth of caudal peduncle 10.5 to 11.5 in standard length; length of caudal peduncle measured from base of last dorsal ray 8.3 to 10 in standard length (if measured from point of juncture of last anal membrane to body, the length is contained about 15 times in standard length); head length 3 to 3.4 in standard length; head steep, the profile above upper lip forming an angle of about 60 degrees with the horizontal; eye about 3 to 4.1 in head length, the greatest diameter diagonally from lower anterior to upper posterior edge; snout short, the horizontal length 4.3 to 5.5 in head length; maxillary extending to or nearly to a vertical at center of eye; interorbital space concave and narrow, the least bony width 8.7 to 11 in head length.

Gill opening ending at about level of lower edge of pectoral base, its length contained about 1.7 times in head length; a fleshy fold linking lower end of gill opening across isthmus to opening on other side; upper lip broad, its greatest depth about 1.5 to 1.6 in head length; a secondary

fold on side of upper lip (not extending across median part of snout); a ventrally directed flap on side of lower lip (distance equivalent to space occupied by 15 lower teeth contained in gap between medial edges of labial flaps of holotype); holotype with 32 upper and 32 lower incisiform teeth (fewer on smaller specimens—see Table 2), incisiform teeth firmly set in jaws, elongate, and close-set with lips slightly pointed and slightly incurved; each side of upper jaw with a curved canine tooth posterior to and separated by a gap from incisiform series; each side of lower jaw with a large curved canine lying posterior but adjacent to the last incisiform tooth; supraorbital tentacle a transverse flap with a fringe of 2 to 11 cirri (fewer on smaller specimens); posterior nostril near rim of orbit at level of upper edge of pupil; anterior nostril with a fleshy rim and an elongate flap on rear edge containing 2 to 6 cirri; no other tentacle or cirri present.

Lateral line nearly straight anteriorly, curving downward near end of pectoral fin and continuing a short distance midlaterally (to level of base of seventh soft ray of anal fin of holotype); anterior portion of lateral line with pores at ends of short vertical branches above and below main canal; curved and straight posterior portions of lateral line consisting of disjointed segments. Suborbital canal between region behind center of eye and nostrils with about 10 ventrally-directed rami containing one or more pores; small region immediately in front of anterior nostril with 3 pores (a few additional very small pores are also visible on some specimens); vertebrae 32 (including hypural); branchiostegal rays 6.

Dorsal rays XII (rarely XI or XIII), 12 or 13 (usually 13); dorsal fin origin slightly anterior to upper end of gill opening; first dorsal spine 7.5 to 10 in standard length; dorsal fin deeply indented posteriorly in spinous portion, the last dorsal spine 15 to 22 in standard length, 2.5 to 3.4 in length of first dorsal soft ray; longest (fourth or fifth) dorsal spine 6.5 to 8.2 in standard length (ninth dorsal spine of holotype abnormally short); longest (fourth to sixth) dorsal soft ray 5.3 to 5.9 in standard length. Anal rays II,14 to 16 (usually 15, rarely 16); origin of anal fin in line with base of tenth dorsal spine; anal spines of presumedly mature males tipped with fleshy rugose knobs; first anal spine of females nearly embedded in postanal tissue; first anal soft ray 8.7 to 11 in standard length; longest (twelfth or thirteenth) anal soft ray 6.8 to 7.8 in standard length; membrane connecting last anal ray to caudal peduncle posterior to comparable membrane of dorsal fin; dorsal and anal soft rays unbranched. Caudal fin rounded, its length 4.7 to 5.3 in standard length; segmented caudal rays 13, the upper and lower two unbranched, the central 11 branched. Pectoral rays nearly always 14; pectoral fins relatively long, reaching a vertical at about base of third anal soft ray; interradial membranes of pectoral fins from ray tip to ray tip on about the upper 10 rays; lower 4 membranes incised along the uppermost of each adjacent pair of rays. Pelvic rays I,4, the spine a short splint, the last two rays very slender; pelvic fins inserted at ventral branchial tissue fold, anterior to origin of dorsal fin; length of pelvic fins 4.2 to 4.7 in standard length.

TABLE 2. Measurements and counts of the holotype and selected paratypes of *Hypleurochilus springeri* (in thousandths of the standard length)

	HOLOTYPE	PARATYPES				
	USNM 257884–F1 Puerto Rico Female	UMML 6910 St. Martin Female	UMML 15978 Bahamas Male	UMML 5490 Bahamas Male	UF 10884 Florida Male	UPR 2363 Puerto Rico Female
Standard length (mm)	48.2	42.3	41.1	33.0	30.3	26.6
Greatest body depth	262	286	243	239	257	233
Greatest body width	180	175	173	181	165	154
Head length	301	328	297	303	329	289
Snout length	67	69	66	66	60	64
Eye diameter	81	83	73	75	99	98
Postorbital length of head	160	165	167	151	164	139
Suborbital depth[1]	39	42	46	44	43	34
Body interorbital space	31	33	34	33	30	30
Least depth of caudal peduncle	91	94	88	91	92	87
Caudal peduncle length[2]	102	101	100	112	108	120
Snout to origin of dorsal fin	274	290	292	297	297	274
Snout to origin of anal fin	560	554	518	530	512	557
Snout to origin of pelvic fin	218	229	224	230	208	218
Dorsal fin base length[3]	664	673	662	655	665	640
Anal fin base length[3]	370	364	389	385	397	353
Pectoral fin length	324	284	304	278	291	293
Pelvic fin length	220	224	210	221	237	233
1st dorsal spine length	102	106	114	118	132	111
Longest dorsal spine length	122	130	143	145	154	150
Last dorsal spine length	50	45	49	54	66	60

(Table 2 continued)

	HOLOTYPE USNM 257884–F1 Puerto Rico Female	PARATYPES UMML 6910 St. Martin Female	UMML 15978 Bahamas Male	UMML 5490 Bahamas Male	UF 10884 Florida Male	UPR 2363 Puerto Rico Female
1st dorsal ray length	153	151	153	148	165	152
Longest dorsal ray length	187	172	173	170	189	169
2nd anal spine length	41	47	56	63	92	56
1st anal ray length	91	94	109	91	115	94
Longest anal ray length	147	142	129	130	140	131
Caudal fin length	203	189	204	197	214	207
Longest suborbital cirrus	33	40	78	79	92	37
Lower canine tooth length	25	24	32	27	33	26
Dorsal rays	XII,13	XII,13	XII,12	XIII,12	XII,13	XII,12
Anal rays	II,15	II,14	II,15	II,15	II,15	II,14
Pectoral rays	14(14)	14(14)	14(15)	14(14)	14(14)	14(14)
Pelvic rays	I,4	I,4	I,4	I,4	I,4	I,4
Lateral-line pores	27	23	24	23	19	21
Gill rakers	11	11	13	12		
Upper incisiform teeth	32	30	27	22	24	24
Lower incisiform teeth	32	30	26	21	25	23
Supraorbital cirri	9(11)	9(8)	8(7)	3(3)	5(5)	5(3)
Nasal cirri	6(6)	4(4)	2(2)	4(4)	2(4)	2(2)

[1] Minimum distance between eye and groove above upper lip.

[2] Horizontal distance from last dorsal ray base to end of hypural plate.

[3] Distance between bases of first spine and last ray. In the case of the anal fin of females, the measurement is between base of second anal spine and last anal ray.

Color of holotype in life greenish gray with 5 groups of squarish dark brown blotches along back, each composed of 4 composite blotches, one forming each corner of the square; first group of blotches centered at base of third dorsal spine, second on eighth spine, third on second ray, fourth on eighth ray, and the last on caudal peduncle; a series of smaller dark blotches along mid-lateral line, some of which line up with larger blotches above; head and about anterior half of body densely spotted with orange dots; an indistinct dark blotch on pectoral base; ventral part of head and abdomen pale gray; behind and slightly below eye a whitish line encircling a roundish area about as large as eye which is slightly darker than rest of head; median fins pale with orangish brown spots that tend to form diagonal rows in dorsal fin and irregular vertical rows in caudal fin; indistinct dark brown spots along base of anal fin; tips of anal rays pale; pectoral membranes hyaline, the rays spotted with brownish yellow; pelvic fins pale; iris with 8 spoke-like bars of orange-red, the upper part a little bluish. In alcohol the specimen is tan, the dark brown markings of the body and spots in median fins remaining, but there is no trace of the orange dots and only vestiges of the brownish yellow spots on the pectoral rays; 2 faint dark bars run ventrally from eye, one vertically behind corner of mouth and an anterior one which runs slightly diagonally across side of upper lip; a slight concentration of dark pigment on the first interdorsal membrane, but not enough to regard as a spot.

A 12.6-mm juvenile from Antigua displays 3 prominent blackish bars posteriorly, the most posterior traversing caudal peduncle; broad bar beneath soft portion of dorsal fin dividing below mid-lateral line into two sections that reach anal base; most anterior of the 3 dark bars beginning at base of indented portion of dorsal fin and nearly reaching midventral line; 2 more anterior bars on the body are only faintly discernible. On progressively larger juveniles the 3 posterior bars do not reach as far ventrally and tend to break up into spots, but they remain much darker than the 2 anterior groups of blotches until large adult size is attained.

Victor G. Springer (personal communication) reported the life color of a 16.5-mm specimen from Dominica as follows: first broken bars on body coral pink mixed with melanophores, remaining 3 solid bars predominantly black with some light coral pink dorsally (progressively less pink on posterior bars); spaces between bars pale with faint irregular yellow suffusions; venter pale; pectoral base coral red mixed with melanophores and some light yellow; snout and interorbital with brilliant coral red markings; dorsal spines, and to a lesser degree, dorsal rays with faint coral pink spots and melanin; caudal fin with 3 very faint coral pink bands, the base very faintly yellow; anal rays suffused with faint pink and melanin; upper pectoral rays transparent, middle ones light pink and lower rays coral pink; base of rays with dark points surrounded by light yellow; pelvic fins faint coral pink; iris brilliant coral red.

Remarks: Judging from existing collections, *Hypleurochilus springeri*

is the smallest of the West Indian species of the genus. The largest example is the holotype, 48.2 mm standard length (2¼ inches total length). The species is not common; on only one occasion have more than two specimens been taken at a single large rotenone station. All but one of the specimens have been collected in less than 10 ft of water. The usual habitat is rock along a sandy shore in clear, relatively calm water.

The stomach contents of two paratypes from Puerto Rico were examined. The fish had eaten polychaetes, the thoracic appendages of a barnacle, amphipods and other crustaceans, soft animal material and a small amount of filamentous algae.

The species is known from the Florida Keys and many localities throughout the West Indies. It is named in honor of Victor G. Springer in recognition of his research and continued interest in blennioid fishes.

I propose the common name "orange-spotted" blenny for this species. Although *H. aequipinnis* also has orange spots, they are not as evident as on *springeri*.

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